Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of Part 15 of the Commission's Rules to permit operation of biomedical telemetry devices on VHF TV channels 7-13 and on UHF TV channels 14-46	)	ET Docket No. 95-177

REPLY TO OPPOSITION

The Cellular Phone Taskforce ("Taskforce") hereby replies to the opposition filed by the Critical Care Telemetry Group ("CCTG") in the above-captioned proceeding on February 5, 1998, as follows:

1. In Section I of its Opposition, CCTG alleges that the Taskforce is asking for more stringent standards in the case of biomedical telemetry than in the case of other broadcast facilities. In fact the Taskforce is simply asking for the same relief from the Commission in the case of biomedical telemetry equipment that it has asked for with respect to all other broadcast facilities, including television and land mobile transmissions. Such relief must be sufficient to protect electrically sensitive individuals who must avoid all exposure to electromagnetic radiation. However, the denial of civil rights of electrically sensitive people is especially eggregious in the case of biomedical telemetry devices which will deny these people access to life-saving medical care.

2. In Section I of its Opposition, CCTG further states that the Taskforce's evidence should have been presented

during the time for submitting comments earlier in the docket. In fact the information necessary to evaluate the proposed rules only began to become available after November 1996 when, pursuant to the Telecommunications Act of 1996 and the Commission's revised radiofrequency safety guidelines, larger numbers of Americans than ever before began to be exposed to digital radiofrequency radiation from new wireless systems at ambient average power densities in excess of 1 nanowatt per square centimeter. Based on a continuously increasing flow of reports--up to 50 or 60 per week by mail and by phone--from all across the United States, it has become clear that a significant fraction of the population cannot tolerate being exposed chronically to levels of radiofrequency radiation of that magnitude; that a smaller fraction of the population cannot tolerate being exposed acutely to levels of that magnitude; and that such radiation is lethal to some individuals. A growing number of scientific studies on electrical sensitivity have placed the number of such individuals altogether at between 2 and 30 percent of the population. Such studies are referenced in Microwaving Our Planet: The Environmental Impact of the Wireless Revolution, Arthur Firstenberg, 1996, 1997; in articles in Electrical Sensitivity News, Volumes 1 and 2; and in the report of the European Commission, Possible Health Implications of Subjective Symptoms and Electromagnetic Fields, 1997, Appendix 3, all of which have previously been submitted into the Commission's record in ET Docket 93-62, In the Matter of Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation.

The Swiss government, based on epidemiological research conducted by Theodor Abelin, M.D. at the University of Berne, has stated it is proven there is a direct correlation between radiofrequency radiation as low as 2 nanowatts per square centimeter and sleeplessness, nervousness, limb and joint pain, general weakness and tiredness, cough and sputum, and abnormal blood pressure. See Study on Health Effects of the Shortwave Transmitter Station of Schwarzenburg, Berne, Switzerland, Study No. 55, Swiss Federal Office of Energy, 1995, and followup study, "Do radiofrequency electromagnetic fields cause sleep disorders?", Altpeter et al., Abstract No. 351, 1997, to be published shortly, both previously submitted into the record of ET Docket No. 93-62. Said shortwave transmitter is scheduled to be shut down March 1998. By the time sufficient information was available to make intelligent estimates of power levels that would protect electrically sensitive people, the comment period for ET Docket No. 95-177 had long passed.

3. In Section III, CCTG alleges that the permitted operation of requested biomedical telemetry devices will be a small fraction of the maximum recommended levels permitted under the Commission's rules and are infinitesimal when compared with other permitted communications devices. The opposite is in fact true. Biotelemetry monitoring devices are designed to be used in very close proximity to patients, and the > 0.01 microwatts per square centimeter that was calculated at 3 meters, and >1 microwatt per square centimeter at 1 foot (pages 2-3 of

the Taskforce's Petition for Reconsideration*) exceed by orders of magnitude the ambient levels of radiation due to television and land mobile broadcast facilities in most locations, and have unfortunately proved sufficient to cause grave and even fatal injury to susceptible people. CCTG is correct that the Taskforce is not arguing that telemetry devices would exceed the Commission's guidelines; however, those guidelines are at present under appeal by the Taskforce because they are so ludicrously lenient that they do not even protect people who aren't electrically sensitive from serious injury under chronic exposure.

4. In response to the Engineering Statement submitted by Philip A. Rubin & Associated, the Taskforce says as follows:

A. On page 5-6, the report makes mention of the 10 microwatt per square centimeter limit we asked for in our Petition for Reconsideration of August 30, 1996 in ET Docket No. 93-62. The Taskforce respectfully notes that in August of 1996, personal communications services (PCS) technology in this country existed only in Washington, DC, and also in Dallas, Texas, where it was brand new, and there was no reliable epidemiological information available at that time to predict the power levels to which sensitive people could safely be exposed for the simple reason that massive numbers of human beings had never been exposed to levels of much more than a nanowatt per square centimeter before on a chronic basis. This was particularly true of pulsed, digitally-modulated signals. The only guidance we had to go by were the standards that had

* "milliwatt" appeared on p. 3 due to a typing error

once been set in much of Eastern Europe and the Soviet Union, based on epidemiological studies of workers occupationally exposed to relatively high levels of microwave radiation. These standards were generally about 10 microwatts per square centimeter. As the Commission will note, by February of 1997, when the Taskforce submitted its second Petition for Reconsideration and its Discrimination Complaint, this situation had already drastically changed. Large numbers of people were now ill and fleeing their homes, and we could no longer give a number to the level that would be protective. PCS radiation was clearly dangerous, and average exposure levels were well below the 10 microwatt per square centimeter level, as we now know because we have taken measurements. The first confirmed deaths from PCS radiation occurred on March 14 and May 8, 1997, both from cerebral hemorrhage, and we have good reason to believe these are not isolated cases, but most of the evidence thus far is by necessity anecdotal: since the Commission has preempted the issue of health, no local authority is taking the problem seriously enough to launch a properly-designed epidemiological study, and it has perforce fallen to those of us who are fighting for our lives to gather the evidence as best we can under terrible conditions, i.e. while sick, homeless, and in some cases dying.

After 15 months of gathering evidence from what amounts to forced, massive human experimentation, we can now report with some degree of authority that:

(i) digital signals should never be broadcast;

(ii) average power densities of greater than 1 nanowatt per square centimeter are not safe for human beings;

(iii) no radio or television or cellular broadcast antenna should ever be closer than one mile to anyone's residence; and

(iv) the proliferation of biomedical telemetry devices at the power levels CCTG is talking about, rather than save lives, will injure and disable people, and will deprive all health care to a class of American citizens on the basis of their handicap.

B. The Taskforce agrees substantially with the calculations on pages 7-9 of the report, but notes that real life exposures are very likely to differ substantially from these calcuations. Firstly, as is noted on page 7 of the report, compliance is measured in terms of specific absorption rate, not power density, and for a very good reason: at these distances, the patient is in the near field, and the far field equations used in this report do not apply. Secondly, in a typical hospital setting with many reflecting surfaces, a high density of people, metal wires and metal objects everywhere, and an indefinite proliferation of such biomedical telemetry devices (as is to be expected), actual exposure will vary tremendously. For example, Om Gandhi has shown that at resonance in electrical contact with ground plane, in a 90° corner reflector, the SAR can actually be increased from 0.27 W/kg to 116.48 W/kg, or about 430 times.

(Gandhi et al., 1977, "Deposition of electromagnetic energy in animals and in models of man with and without grounding and reflector effects", Radio Science 12(6S):39-47). It has been shown that simply wearing metal-framed eyeglasses can increase the exposure to the eyes up to 100 times (Davias and Griffin, 1989, "Effect of metal-framed spectacles on microwave radiation hazards to the eyes of humans", Med. & Biol. Eng. & Comput. 27: 191-197). There are also "hot spots" in the human brain, for example, the center of the brain can absorb 200 times more radiation than expected due to the focusing effect of the curvature of the skull (Johnson and Guy, 1972, "Nonionizing Electromagnetic Wave Effects in Biological Materials and Systems," Proc. IEEE 60(6):692-720). In the near field of radiating devices, enhancement factors of up to 10,000 have been found in "hot spots" in experimental animals (Lin, Guy, and Caldwell, "Thermographic and Behavioral Studies of Rats in the Near Field of 918-MHz Radiations", IEEE Transactions on Microwave Theory and Techniques, MTT-25(10):833-836, 1977.) Multiple bodies in close proximity can also increase one's dose of radiation 2½ times (Gandhi, Hagmann, and D'Andrea, 1979, "Part-body and Multibody Effects on Absorption of Radio-Frequency Electromagnetic Energy by Animals and by Models of Man," Radio Science 14(6S):15-21). Patients in hospitals also usually have metal wires and metal machines hooked up to them, lie on metal beds, and often have metal implants, all conducting, reflecting, and re-radiating the impinging radiofrequency energy. Actual SAR can be many orders of magnitude higher

than expected to parts of the body, and will in general bear no relation whatever to the far-field equations used in the report of Philip A. Rubin & Associates.

C. The comparison on page 10 of the report between BTDs and cellular phones of 7 Watts is totally irrelevant for many reasons. First, no cellular phone transmitter of 7 watts is ever going to be allowed inside a hospital because it would play havoc with all the biotelemetry devices CCTG wants to use. The issue here is preserving the right of all American citizens to receive care in medical facilities without being subjected to hazardous radiation. Any cellular phone that is allowed in a hospital will not be more powerful than 0.6 Watts. Second, cellular phone calls last for a few minutes, resulting in brief, transient, and avoidable exposure, whereas BTDs will be exposing all patients and visitors and employees throughout the hospital chronically and inescapably, all the time. Third, BTDs will actually be attached to patients, whereas cellular phones are not. Fourth, if BTDs of this power output become standard, patients will not have a choice to use them or not. Such is not the case with a cellular phone.

5. For the above reasons, the Cellular Phone Taskforce repeats its request to the Commission to set aside its Report and Order in this docket, as the Critical Care Telemetry Group has not offered a sound rebuttal to our Petition for Reconsideration.

Respectfully submitted,

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February 16, 1998
Original + 11 copies by Federal Express

Certificate of Service

I hereby certify that I sent a true and correct copy of the foregoing Reply to Opposition this 16th day of February, 1998, by first-class mail, postage paid, to Henry Goldberg, Goldberg, Godles, Wiener & Wright, 1229 Nineteenth Street, N.W., Washington, DC 20036.

Arthur Firstenberg

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